

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The rejection of claims 1-4 and 6 under 35 USC §103 as allegedly being made "obvious" based on Endo '486 in view of Okano '183 is respectfully traversed.

In a nutshell, the structure taught and/or suggested by the cited art is not believed to provide Applicant's advantageous capsule/adaptor/collar/socket assembly that permits adjustment in three orthogonal dimensions with respect to each other (i.e., both along and around each of three orthogonal axes) to achieve more optimized filament placement (i.e., in a focused position) before being welded together in a final, permanent position.

It is noted that the Examiner only refers to Okano with respect to the rejection of claim 3. That is, it appears that the Examiner alleges anticipation by Endo of claims 1, 2, 4 and 6, but "obviousness" with respect to claim 3.

The present invention provides for an improved incandescent lamp-socket assembly having an incandescent lamp fitted into the socket. A novel adapter and adjustment collar fix the assembly at a predetermined location with respect to a reference plane and reference axis to ensure that the lamp is properly aligned with respect to the headlight reflector.

The claimed lamp-socket assembly advantageously provides simplicity of construction — making it economical to manufacture and easy to assemble. Applicant's invention is particularly suitable for use in automotive headlights where accurate alignment, i.e., the position of the filament of the lamp with respect to the reflector, is of utmost importance for required light distribution emanating from the headlight beam.

Applicant's lamp-socket assembly achieves the objective of accurate alignment by virtue of a distinctive combination of (a) an adapter and (b) adjustment collar – and their cooperative relationship with a socket. The adapter and collar provide flexible, yet firm, characteristics to the lamp assembly, thereby permitting the filament to be aligned with a reference axis and then positioned therealong at an optimum position of focus.

Due to manufacturing limitations, it is not always possible to make lamps with filaments accurately aligned in the capsule. Alternatively, it is also not possible to manufacture lamps having identical alignment of the filament inside of the capsule. Therefore, the lamp filament may not always be accurately positioned inside of the capsule. When such a lamp is used in headlights, even a minor aberration in the filament position may translate into large-scale deviation of light distribution – because the filament is not positioned correctly with respect to the reflector. To achieve accurate alignment of the lamp-socket assembly with respect to a reference plane, there must be some scope for three-dimensional adjustment of the filament (inside the capsule) *vis-à-vis* the reflector.

In Applicant's assembly, it is possible to adjust the position of the filament by moving the constituent parts along and around three axes perpendicular to each other, i.e., along and around vertical axes and along and around two axes perpendicular to each other in a horizontal plane:

- The flat surface (8) of the adapter (5) is weldably mounted on the flat surface (9) of the adjustment collar (10).
- In the mounted form, slit (6') of the adapter and the opening (9") of the adjustment collar are in alignment with each other to enable the press seal portion (3) of the capsule (1) to pass comfortably

therethrough. The capsule (1) is fitted to the adapter (5) by means of press seal (3).

- Care is taken to ensure that the welding of the two flat surfaces (8 and 9) is carried out only after focusing. Proper alignment of the filament with respect to a reference plane and reference axis is called *focusing*. Focusing is achieved by sliding the capsule (1) with the adapter means (5) over the horizontal surface (9) of the adjustment collar (10) and adjusting their position relative to the socket so that the center of at least one end of the filament falls on a predetermined position from the central axis depending upon the tilt of the filament with respect to the reference axis passing through the center of the vertical sidewalls of the adjustment collar and perpendicular to the horizontal flat surface of the adjustment collar.
- The above-described structure also leaves enough room for movement of the capsule (1), adapter (5) and collar (10) assembly in the socket (14) to align the filament axis with the reference axis. For example, the upper open end of the socket may have vertical weld means or lugs (16) for welding the socket assembly (7) to the adapter-adjustment collar assembly.
- It is thus possible to adjust the position of the filament (2) by moving the constituent parts (1, 5 and 10, i.e., capsule-adapter-adjustment collar assembly) with respect to each other and/or the socket along and around three axes perpendicular to each other.
- Vertical weld surfaces or projecting lugs (16) of the exemplary embodiments provide flexibility while adjusting the capsule-adapter-

adjustment collar assembly (1-5-10) in the socket (14). The lugs (16) also are helpful for proper contact of the assembly during and after the adjustment, thereby resulting in a proper welding of the constituent parts. In this way, the whole incandescent lamp assembly is adjusted for optimum focus and is securely welded thereat.

- Thus, the present invention makes it possible to position the filament with respect to (a) a reference plane and (b) a reference axis by adjustable movement of the sub-assemblies before finally being welded with the filament at the position of optimum focus that will satisfy international standards.

Endo at 4:42-46 describes fastening the halogen bulb 10 to the holder 16:

"...At this time, the flange 60 of the base 56 is moved along the inner wall of the sleeve member 42, and the filaments are positioned in the vertical direction. When the supporting portion 52 is being moved on the base 56, the filament[s] are positioned in a lateral direction...."

From the above description, it is clear that Endo's positioning of the filament is restricted to vertical and lateral directions. If the filament is tilted with respect to a vertical reference axis passing through the center of the sleeve member (42), the filament apparently cannot be positioned vertically by moving the sub-assembly (members 10, 50 and 56) in the sleeve member (42) around two axes perpendicular to each other in a horizontal plane. If attempted, the portions (60) of member (56) would not appear to have proper contact with the inner surface of the sleeve member (42), resulting in improper welding.

Relative movement of Endo's support assembly with respect to the holder so as to achieve greater accuracy in filament alignment is thus apparently not possible in all three axes. The construction and assemblage of Endo, therefore, does not allow for optimally accurate adjustment of the bulb filament.

Applicant's claimed invention, however, provides for filament adjustment with respect to the reference plane and reference axis by adjustable movement of the sub-assemblies before finally welding the filament at the position of optimum location inside the reflector of the headlight.

Applicant's capsule-adapter-adjustment collar assembly is fixed/welded to the upper open end of the socket (14), thus making it possible to adjust the position of the filament by moving the constituent parts along and around three axes perpendicular to each other, i.e., along and around vertical axes and along and around two axes perpendicular to each other in a horizontal plane. This is possible because the interactive faces of collar and socket have complementary circumferences, thereby allowing free movement of said assembly along and around each of the three axes to achieve accurate filament alignment at a position of optimum focus.

Applicant's vertical weld means or lugs (16) are also preferably dimpled (see Fig. 1). The dimpled feature of the lugs is provided so as to render more flexibility to the capsule-adapter-adjustment collar assembly (1-5-10) when fitting it to the socket (14). This dimpled feature allows sufficient room for lateral/residual adjustments if necessary even when the assembly is tightly fitted into the socket.

Given the deficiencies of Endo already noted above with respect to independent claim 1, it is not believed necessary at this time to further discuss

deficiencies of this allegedly "obvious" combination of references with respect to other features of the rejected claims.

The rejection of claim 5 under 35 USC §103 as allegedly being made "obvious" based on Endo/Okano in further view of Devir '955 is also respectfully traversed.

Once again, deficiencies of Endo have already been noted above with respect to parent claim 1. Neither Okano nor Devir are believed to supply these deficiencies. Accordingly, it is not believed necessary at this time to further discuss this allegedly "obvious" combination of references with respect to the additional features of dependent claim 5.

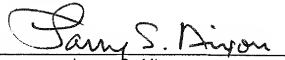
The Examiner's attention is also drawn to new "means-plus-function" claims 7-12 (corresponding respectively to original claims 1-6). Each element of these claims is drafted in a "means-plus-function" format as authorized under 35 USC §112, paragraph 6. Accordingly, these elements must be constructed in light of Applicant's own disclosure to cover the corresponding structure and equivalents thereof.

Accordingly, this entire application is now believed to be in allowable condition, and a formal notice to that effect is respectfully solicited.

Respectfully submitted,

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By:

A handwritten signature in cursive script, appearing to read "Larry S. Nixon", written over a horizontal line.

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